



# Northern Ireland

## Solving global healthcare challenges through medtech innovation

**The integration of medicine and technology is transforming healthcare. It's reshaping the landscape of diagnostics, treatment and patient care. It has opened new frontiers in precision medicine, advanced imaging techniques, telehealth, wearable devices and beyond. And Northern Ireland is at the forefront of that innovation.**

Northern Ireland is leading the way in research, development and commercialisation of medical technology. The region's longstanding success in the medtech sector is underpinned by government support, academic excellence, and innovative local and international companies.

It has a uniquely interconnected Life and Health Sciences ecosystem that enables new technologies to progress rapidly from development to commercialisation.

The region's strong research and innovation environment is driven by two highly ranked research universities, Queen's University Belfast and Ulster University, and benefits from 18 Life and Health Sciences centres of excellence.

### Northern Ireland's Unique Market Access

Northern Ireland offers medtech companies an outstanding advantage for developing and distributing their products. Following the UK's exit from the European Union (EU), Northern Ireland is now the only region in the world with full access to both GB and EU markets.

It is the only place where businesses can operate free from customs declarations, rules of origin certificates and non-tariff barriers when selling to both GB and the EU.

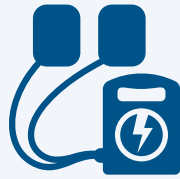
This unique position makes it easier for medical companies and medical device manufacturers based in Northern Ireland to recalibrate supply chains and to design, develop and sell products to GB and EU markets.

## Did you know?



### Expertise

- Over 19,500 individuals work across more than 250 Life and Health Science businesses in Northern Ireland.
- Northern Ireland excels in Precision Medicine, Diagnostics, Medtech, Artificial Intelligence and Data Analytics.
- Recognised within the UK Life Science Super Cluster, Northern Ireland is identified as an emerging cluster with high growth potential in Diagnostics, Digital Health, and more.



### History of Innovation

- Professor Frank Pantridge from Northern Ireland pioneered the first portable defibrillator in 1960, revolutionising emergency medicine.
- Neurovalens, a local company, recently gained acclaim and FDA approval for its innovative wearable device that tackles chronic insomnia and anxiety.



### Research Excellence

- Both Queen's University Belfast and Ulster University are among the UK's top 10 universities for Bioscience research.
- Over 73% of their research is recognised as world-leading or internationally excellent.
- 75% of university spinouts in Northern Ireland are in the Life and Health Sciences sector.



### Leaders in Cyber Security

- Northern Ireland is the number one international location for US Cyber Security development projects (FT fDi Markets, 2023).
- Queen's University Belfast is home to CSIT, the UK's Innovation & Knowledge Centre (IKC) for Cyber Security.
- The university was recently named one of the UK's first Academic Centres of Excellence in Cyber Security research.
- Future investment of around £60m will include an expansion of facilities at Queen's University Belfast's Institute of Electronics, Communications and Information Technology (ECIT).



### Collaboration

The Health Innovation Research Alliance Northern Ireland (HIRANI) fosters cross-collaboration between the NHS, academia, Government and industry to achieve improved economic, health and, social care outcomes for Northern Ireland.

Partnering with local companies Randox, CIGA Healthcare and Intelesens, Northern Ireland Connected Health Innovation Centre (CHIC) developed a mobile patient-led solution that provided rapid diagnosis of 13 conditions while monitoring 5 vital signs independently. The CHIC solution achieved joint 3rd place out of 360 global entries in the Qualcomm Tricorder XPRIZE.





# Medtech Capabilities and Expertise

## Diagnostics

Northern Ireland's long history of diagnostic expertise dates back to the development of the first portable defibrillator in 1960 by Professor Frank Pantridge.

**The region boasts a well-established cluster of stakeholders who are connected across diagnostic development at every stage and can support you throughout your journey.**

A recent example of the region's expertise can be seen in the work of researchers from Queen's University Belfast. They developed a new toolkit that harnesses the power of 'Big Data' for Digital Health. The toolkit, named 'eHDPrep' allows researchers to analyse large health datasets to help improve patient care and outcomes through data-driven innovation.

## Digital Health

The region's world-leading expertise in digital technology spans Connected Health, Digital Twin, Software Engineering, Cyber Security, System Architecture and much more.

**Our advanced capabilities have given providers a more holistic view of patient health through access to data, as well as giving patients more control over their health.**

For example, Health and Social Care NI is investing £300m in the Encompass programme, which will create a single digital care record for every citizen in Northern Ireland. Those digital health care records, rolling out in 2025, will also help accelerate research and innovation with new cutting-edge solutions and technologies.

# Specialist Capabilities

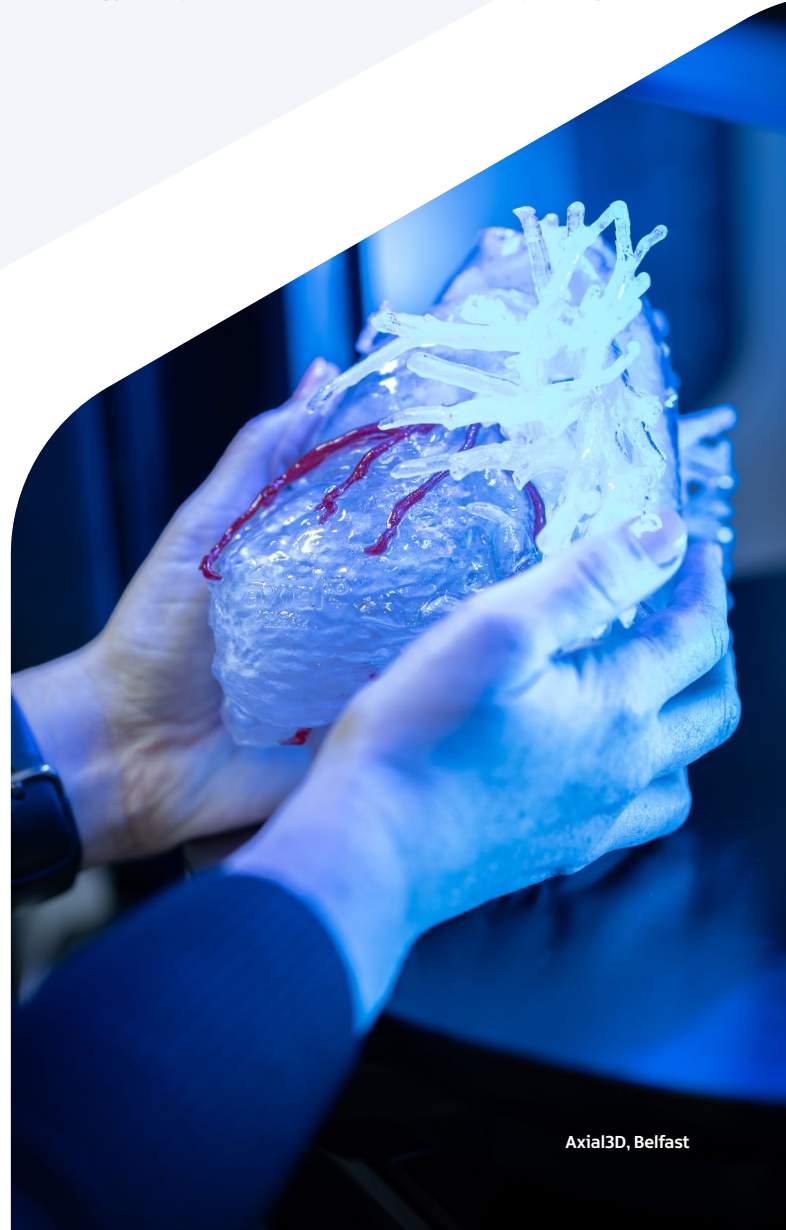
## Artificial Intelligence, Data Analytics & Machine Learning

Our research and industry partners apply AI to a range of structured healthcare data. They use machine learning methods such as classical support vector machines, neural networks, modern deep learning and natural language processing for unstructured data.

The Artificial Intelligence Collaboration Centre (AiCC), based at Ulster University, in partnership with Queen's University Belfast, focuses on increasing business awareness and adoption of AI technology to boost competitiveness and productivity across all sectors including Biomedical R&D and Pharmaceutical Manufacturing.

## Algorithm Development

Our vast academic and industry talent is experienced in developing clinically relevant and robust algorithms. It has a wide range of applications including oncology, cardiology, sleep, mental health, stroke and respiratory.





## Education and Research

Northern Ireland has a wealth of highly educated and talented people. The region is home to two world-class universities, Queen's University Belfast and Ulster University. Both institutions offer renowned degrees in Life and Health Sciences that contribute to a strong talent pipeline.

- In 2020/2021 there were over **6,100 graduates** in Life and Health Sciences.
- In 2020/2021 there were **20,000 university enrolments** in Northern Ireland in a Life and Health Sciences-related degree.
- In addition, there were over **2,300 post-graduates** in areas such as Biomedical Engineering and Biomedical Sciences.

**Research themes within Queen's University Belfast include vision and vascular medicine, respiratory, cancer epidemiology, anti-microbial resistant infections. Meanwhile, Ulster University focuses on cancer, diabetes, heart disease, blindness and diseases associated with ageing populations.**

As well as having two leading universities, investors and businesses in Northern Ireland can access 18 Life and Health Sciences Centres of Excellence with over 1000+ researchers.



Queen's University, Belfast



Ulster University, Derry-Londonderry



# Commitment Through Investment - City and Growth Deals

National and local governments are committed to developing and advancing the Life and Health Sciences sector in Northern Ireland. Recent government support includes a £1.3 billion investment through City and Growth deals, with nearly £200 million earmarked for future healthcare opportunities.

**There will be almost £200m invested through City and Growth Deals across Northern Ireland with innovation projects to advance expertise in Health Technology, Clinical Trials, Data Analytics and Medical Devices.**

It will provide opportunities for businesses, based in Northern Ireland or beyond, to tap into the world-leading expertise of our universities to develop breakthrough technologies, products and services. Additionally, it will create the infrastructure that allows these products to be tested, trialed and de-risked.

This represents an excellent investment opportunity for international businesses and exciting research and collaboration potential for international research institutions.

## Centre for Digital Healthcare Technology (CDHT)

CDHT will be a leading centre for digital technology and associated living labs in cardiology, diabetes, respiratory and stroke. It will provide the forum for academia, industry and clinicians to lead on research into key challenges, including reducing healthcare costs and healthy ageing.

[brcd-innovation.co.uk/projects/cdht](https://brcd-innovation.co.uk/projects/cdht)

## Centre for Food and Drug Discovery

The centre will provide a single-site, pre-clinical hub for the Biopharmaceutical and Food industry. It will offer capability, capacity and expertise at all key stages of the drug discovery pipeline.

## Global Innovation Institute (GII)

GII is a nexus for co-innovation between researchers and industry in data security, connectivity and analytics. It focuses on how interventions in areas such as environment can impact on human health. This centre will bring together human, animal and environmental health data to support a “one health” perspective.

[brcd-innovation.co.uk/projects/gii](https://brcd-innovation.co.uk/projects/gii)

## iREACH Health

This collaboration between researchers, industry, clinicians and the NHS creates a unique ecosystem for clinical trials and testing new drugs through their development lifecycle and integration into care pathways.

[brcd-innovation.co.uk/projects/ireach](https://brcd-innovation.co.uk/projects/ireach)

## Personalised Medicine Centre

This centre will provide world-leading capability in Data Analytics, Biomarker Discovery and Medtech development. It also provides capacity to perform robust clinical trials, and to commercialise and implement new diagnostic tests, drugs and technologies.

[derrycitydeal.com/projects/thrive](https://derrycitydeal.com/projects/thrive)



# Northern Ireland's Medtech Innovators

## Access Elemental

Access Elemental software is a social prescribing solution designed for GPs and other frontline healthcare professionals. As a cloud-based platform it fully integrates with primary care systems, secondary care systems and social care systems so that users can make, manage and report on referrals to social prescribing, care coordination and health coaching safely and securely.

[theaccessgroup.com/en-gb/our-brands/elemental/](https://theaccessgroup.com/en-gb/our-brands/elemental/)

## Armstrong Medical

Armstrong Medical, part of Eakin Healthcare, designs and manufactures innovative respiratory devices and consumables for use in Neonatal, Critical Care and Perioperative sectors. Established in 1984, Armstrong Medical has grown considerably, and has become a worldwide supplier of high-quality respiratory care products, exporting to over 60 countries.

Armstrong Medical makes the connection that supports healthcare professionals deliver optimum respiratory therapies as efficiently and consistently as possible to improve patient outcomes and assist healthcare professionals in their role.

[armstrongmedical.net](https://armstrongmedical.net)

## Axial3D

Axial3D is a multi award-winning medical imaging technology company with a mission to make patient-specific care standard practice. Axial3D has created a cloud-based segmentation platform allowing clinicians to see patient data in 3D. To meet growing demands of hospitals and medical device manufacturers, Axial3D has partnered with Stratasys to advance the use of 3D printing in medicine and push the boundaries of innovation.

[axial3d.com](https://axial3d.com)

## B-Secur

B-Secur has developed HeartKey® 2.0, a suite of powerful ECG algorithms and analytics that enhances signal clarity, reduces signal noise and delivers FDA-cleared health data with actionable wellness insights. B-Secur partner with world-leading technology companies reducing time to market for next-generation medical and consumer devices and platforms.

[b-secur.com](https://b-secur.com)

## Cumulus Neuroscience

Cumulus Neuroscience has created a next-generation integrated physiological and digital biomarker platform. In clinical trials it provides the critical data and insights needed to accelerate the delivery of more effective CNS drugs to patients. This addresses the significant unmet need for faster, more robust and cost-effective execution and evaluation of clinical trials in neuroscience.

[cumulusneuro.com](https://cumulusneuro.com)

## Diaceutics

Diaceutics provides the data, technology solutions and insights that enable the life science sector to revolutionise the commercialisation of products and improve patient outcomes. Through their DXRX® platform, they provide data analytics, scientific, and advisory services to the world's leading pharma and biotech companies, ensuring personalised therapies for patients. The majority of global pharma companies use their data everyday to find patients.

[diaceutics.com](https://diaceutics.com)

# Northern Ireland's Medtech Innovators

## Neurovalens

Neurovalens has designed cranial nerve stimulation technology that accurately and efficiently activates key brainstem neurons non-invasively. These wearable devices can be used at home for 30 to 60 mins per day and deliver a low-level electrical pulse to areas of the brain to provide drug-free treatments across anxiety, type 2 diabetes, insomnia and obesity. Neurovalens obtained FDA approval for Modius Sleep designed to improve insomnia and most recently Modius Stress targeting anxiety.

[neurovalens.com](http://neurovalens.com)

## Randox Laboratories

Randox is one of the largest diagnostic manufacturers globally with offices and distribution in over 145 countries. Randox develops innovative diagnostic solutions to offer clinicians and physicians insight into patient diagnosis for effective disease management and treatment across a range of health conditions including heart disease, diabetes, Alzheimer's disease, cancer and stroke.

[randox.com](http://randox.com)

## Sonrai Analytics

Sonrai Analytics is a rapidly growing AI data analytics start-up that helps biotech, pharma and contract research organisations (CROs) maximise the potential of their data and bring new life-saving drugs to the market faster. Sonrai's AI data analytics platform, InDRA, is accompanied by bespoke services including data science support, algorithm development and software engineering.

Sonrai Analytics is leading an Artificial Intelligence in Health and Care Award to deliver novel AI cancer screenings across the NHS. Partnering with the Precision Medicine Centre (PMC) at Queen's University the programme is a transformation tool in cancer diagnostics; providing more timely, accurate and affordable laboratory results.

[sonraianalytics.com](http://sonraianalytics.com)

## TruCorp Holdings

TruCorp has 20+ years' experience within the medical simulation market. The company is committed to the development of anatomically correct products to deliver medical best practice.

TruCorp has designed, engineered and produced a wide variety of training manikins for airway management, trauma training, ultrasound, paediatric procedural skills and patient monitoring software.

[trucorp.com/en/](http://trucorp.com/en/)

The logo for Northern Ireland, featuring the words "Northern Ireland" in white text on a dark blue hexagonal background.

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For more on Northern Ireland's Life and Health Sciences sector, visit [investni.com/life-and-health-sciences](http://investni.com/life-and-health-sciences)

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